Claims:

1-(Azolin-2-yl)amino-1,2-diphenylethane compounds of the general formula (I): 1.

$$(R^1)_n \xrightarrow{R^3} \overset{R^4}{\underset{H}{\longrightarrow}} (R^2)_m$$
 (1)

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wherein A is a radical of the formulae A<sup>1</sup> or A<sup>2</sup>:

and wherein

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is 0, 1, 2, 3, 4 or 5; m

n

is 0, 1, 2, 3, 4 or 5;

Χ

 $R^1, R^2$ 

is sulfur or oxygen;

are each independently halogen, OH, SH, NH<sub>2</sub>, SO<sub>3</sub>H, COOH, cyano, nitro, C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-alkoxy, C<sub>1</sub>-C<sub>6</sub>-alkylamino, di(C<sub>1</sub>-C<sub>6</sub>-

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alkyl)amino, C<sub>1</sub>-C<sub>8</sub>-alkylthio, C<sub>2</sub>-C<sub>6</sub>-alkenyl, C<sub>2</sub>-C<sub>6</sub>-alkenyloxy, C<sub>2</sub>-C<sub>6</sub>alkenylamino, C2-C6-alkenylthio, C2-C6-alkynyl, C2-C6-alkynyloxy, C2-C<sub>6</sub>-alkynylamino, C<sub>2</sub>-C<sub>6</sub>-alkynylthio, C<sub>1</sub>-C<sub>6</sub>-alkylsulfonyl, C<sub>1</sub>-C<sub>6</sub>-

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alkylsulfoxyl, C2-C6-alkenylsulfonyl, C2-C6-alkynylsulfonyl, formyl, C1-C<sub>6</sub>-alkylcarbonyl, C<sub>2</sub>-C<sub>6</sub>-alkenylcarbonyl, C<sub>2</sub>-C<sub>6</sub>-alkynylcarbonyl, C<sub>1</sub>-

C<sub>6</sub>-alkoxycarbonyl, C<sub>2</sub>-C<sub>6</sub>-alkenyloxycarbonyl, C<sub>2</sub>-C<sub>6</sub>-alkynyloxy-

carbonyl, carbonyloxy, C1-C6-alkylcarbonyloxy, C1-C6-alkenylcarbonyloxy, C<sub>1</sub>-C<sub>6</sub>-alkynylcarbonyloxy, wherein the carbon atoms in the aliphatic radicals of the aforementioned groups may carry any

combination of 1,2 or 3 radicals R#,

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C(O)NRaRb, (SO2)NRaRb, wherein Ra and Rb are each independently hydrogen, C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>2</sub>-C<sub>6</sub>-alkenyl, or C<sub>2</sub>-C<sub>6</sub>-alkynyl, wherein the carbon atoms in these groups may carry any combination of 1, 2 or 3 radicals R#,

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a radical Y-Ar or a radical Y-Cy, wherein

is a single bond, oxygen, sulfur, C1-C6-alkandiyl or C1-C6-Υ alkandiyloxy. is phenyl, naphthyl or a mono- or bicyclic 5- to 10-membered Ar heteroaromatic ring, which contains 1,2, 3 or 4 heteroatoms selected from oxygen, sulfur and nitrogen as ring members, 5 wherein Ar is unsubstituted or may carry any combination of 1, 2, 3, 4 or 5 radicals R#; and is C3-C12-cycloalkyl, which is unsubstituted or substituted with Су any combination of 1, 2, 3, 4 or 5 radicals R#; 10 and wherein two radicals R1 or two radicals R2 that are bound to adjacent carbon atoms of the phenyl rings may form together with said carbon atoms a fused benzene ring, a fused saturated or partially unsaturated 5-, 6-, or 7-membered carbocycle or a fused 5-, 6-, or 7membered heterocycle, which contains 1, 2, 3 or 4 heteroatoms se-15 lected from oxygen, sulfur and nitrogen as ring members, and wherein the fused ring is unsubstituted or may carry any combination of 1, 2, 3, or 4 radicals R#; are each independently hydrogen, C1-C6-alkyl, C1-C6-haloalkyl, C3-C6-R3, R4 20 cycloalkyl, wherein the carbon atoms in these groups may carry any combination of 1, 2 or 3 radicals R#, phenyl or benzyl, each unsubstituted or substituted with any combination of 1 to 5 halogen, 1 to 3 C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-haloalkyl, C<sub>1</sub>-C<sub>6</sub>-25 alkylthio, C1-C6-haloalkylthio, C1-C6-alkoxy or C1-C6-haloalkoxy groups;  $R^{5a}$ ,  $R^{5b}$ ,  $R^{5c}$ ,  $R^{5d}$  are each independently hydrogen,  $C_1$ - $C_6$ -alkyl,  $C_1$ - $C_6$ -haloalkyl, C1-C6-alkylamino, C1-C6-alkoxy, C3-C6-cycloalkyl, wherein the carbon 30 atoms in these groups may carry any combination of 1, 2 or 3 radicals R#, halogen, cyano, nitro, hydroxy, mercapto, amino, phenyl or benzyl, each unsubstituted or substituted with any combination of 1 to 5 halogen, 1 to 3 C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-haloalkyl, C<sub>1</sub>-C<sub>6</sub>-35 alkylthio,  $C_1$ - $C_6$ -haloalkylthio,  $C_1$ - $C_6$ -alkoxy or  $C_1$ - $C_6$ -haloalkoxy groups; is hydrogen, cyano, nitro,  $C_1$ - $C_6$ -alkyl, formyl,  $C_1$ - $C_6$ -alkylcarbonyl,  $C_1$ - $R^6$ C<sub>6</sub>-alkoxycarbonyl, C<sub>1</sub>-C<sub>6</sub>-alkylthiocarbonyl, wherein the carbon atoms 40

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in the aliphatic radicals of the aforementioned groups may carry any combination of 1, 2 or 3 radicals  $R^{\#}$ ,

C(O)NR<sup>a</sup>R<sup>b</sup>, or (SO<sub>2</sub>)NR<sup>a</sup>R<sup>b</sup>, wherein R<sup>a</sup> and R<sup>b</sup> are as defined above, phenyl, phenyloxy, or benzyl, each of the last three mentioned radicals may be unsubstituted or substituted with any combination of 1 to 5 halogen, 1 to 3 C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-haloalkyl, C<sub>1</sub>-C<sub>6</sub>-alkylthio, C<sub>1</sub>-C<sub>6</sub>-haloalkoxy groups;

 $R^7$  is hydrogen, cyano, nitro,  $C_1$ - $C_6$ -alkyl, formyl,  $C_1$ - $C_6$ -alkylcarbonyl,  $C_1$ - $C_6$ -alkoxycarbonyl, wherein the carbon atoms in the aliphatic radicals of the aforementioned groups may carry any combination of 1, 2 or 3 radicals  $R^{\#}$ ,

 $C(O)NR^aR^b$ , or  $(SO_2)NR^aR^b$ , wherein  $R^a$  and  $R^b$  are as defined above, phenyl, phenyloxy or benzyl, each of the last three mentioned groups may be unsubstituted or substituted with any combination of 1 to 5 halogen, 1 to 3  $C_1$ - $C_6$ -alkyl,  $C_1$ - $C_6$ -haloalkyl,  $C_1$ - $C_6$ -alkylthio,  $C_1$ - $C_6$ -haloalkylthio,  $C_1$ - $C_6$ -alkoxy or  $C_1$ - $C_6$ -haloalkoxy groups; and

R<sup>#</sup> is halogen, cyano, nitro, hydroxy, mercapto, amino, carboxyl, C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-alkoxy, C<sub>2</sub>-C<sub>6</sub>-alkynyloxy, C<sub>2</sub>-C<sub>6</sub>-alkynyloxy, C<sub>1</sub>-C<sub>6</sub>-haloalkoxy, or C<sub>1</sub>-C<sub>6</sub>-alkylthio;

- 25 and the agriculturally acceptable salts thereof.
  - 2. The compounds as claimed in claim 1, wherein R<sup>3</sup> is hydrogen or C<sub>1</sub>-C<sub>4</sub>-alkyl.
- 3. The compounds as claimed in claim 1 or 2, wherein R<sup>4</sup> is hydrogen, C<sub>1</sub>-C<sub>4</sub>-alkyl, C<sub>1</sub>-C<sub>4</sub>-alkyl, C<sub>1</sub>-C<sub>4</sub>-alkoxy-C<sub>1</sub>-C<sub>4</sub>-alkyl, or phenyl, which is unsubstituted or substituted with any combination of 1 to 5 halogen, 1 to 3 C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-haloalkyl, C<sub>1</sub>-C<sub>6</sub>-haloalkylthio, C<sub>1</sub>-C<sub>6</sub>-alkoxy or C<sub>1</sub>-C<sub>6</sub>-haloalkoxy groups.
- The compounds as claimed in any of the preceding claims, wherein both R<sup>3</sup> and R<sup>4</sup> are hydrogen.
- 5. The compounds as claimed in any of claims 1 to 3, wherein R³ is hydrogen and R⁴ is selected from C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₁-C₄-alkoxy-C₁-C₄-alkyl, or phenyl, which is unsubstituted or substituted with any combination of 1 to 5 halo-

- gen, 1 to 3  $C_1$ - $C_6$ -alkyl,  $C_1$ - $C_6$ -haloalkyl,  $C_1$ - $C_6$ -alkylthio,  $C_1$ - $C_6$ -haloalkylthio,  $C_1$ - $C_6$ -haloalkoxy groups.
- 6. The compounds as claimed in any of the preceding claims, wherein A in formula I is a radical A<sup>1</sup>, wherein R<sup>8</sup> is hydrogen, C<sub>1</sub>-C<sub>4</sub>-alkyl, formyl, C<sub>1</sub>-C<sub>6</sub>-alkylcarbonyl, C<sub>1</sub>-C<sub>4</sub>-haloalkylcarbonyl, C<sub>1</sub>-C<sub>6</sub>-alkoxycarbonyl, C<sub>1</sub>-C<sub>4</sub>-alkoxy-C<sub>1</sub>-C<sub>4</sub>-alkoxycarbonyl or C<sub>1</sub>-C<sub>6</sub>-alkylthiocarbonyl.
- 7. The compounds as claimed in any of claims 1 to 6, wherein A in formula I is a radical A², wherein R<sup>7</sup> is hydrogen.
  - 9. The compounds as claimed in any of the preceding claims, wherein the radicals R<sup>5a</sup>, R<sup>5b</sup>, R<sup>5c</sup> and R<sup>5d</sup> are each hydrogen.
- 15 10. The compounds as claimed in any of the preceding claims, wherein at least one of the radicals R<sup>5a</sup>, R<sup>5b</sup>, R<sup>5c</sup> and R<sup>5d</sup> is different from hydrogen.
  - 11. The compounds as claimed in any of the preceding claims, wherein n in formula I is 0, 1 or 2.
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  12. The compounds as claimed in any of the preceding claims, wherein m in formula l is 0, 1 or 2.
- 13. The compounds as claimed in claim 11 or 12, wherein n+m is an integer from 1,252, 3 or 4.
- The compounds as claimed in any of the preceding claims, wherein R¹ and R² are each independently selected from halogen, C₁-C₄-alkyl, C₁-C₄-alkoxy, C₁-C₄-haloalkyl, and phenyl, which is unsubstituted or substituted with any combination of 1 to 5 halogen, 1 to 3 C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkylthio, C₁-C₆-haloalkylthio, C₁-C₆-alkoxy or C₁-C₆-haloalkoxy groups.
- 15. A method of combating animal pests selected from insects, arachnids and nematodes which comprises contacting said animal pests, their habit, breeding ground, food supply, plant, seed, soil, area, material or environment in which the animal pests are growing or may grow, or the materials, plants, seeds, soils, surfaces or spaces to be protected from attack or infestation by insects, arachnids or nematodes with a pesticidally effective amount of at least one 1-(azolin-2-yl)amino-1,2-diphenylethane compound of the general formula I as defined in claim 1 and/or at least one salt thereof.

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- 16. A method for protecting crops from attack or infestation by insects, arachnids or nematodes which comprises contacting a crop with a pesticidally effective amount of at least one 1-(azolin-2-yl)amino-1,2-diphenylethane compound of the general formula I as defined in claim 1 and/or at least one salt thereof.
- 17. An agricultural composition comprising at least one 1-(azolin-2-yl)amino-1,2-diphenylethane compound of the general formula I as defined in claim 1 and/or at least one salt thereof and a solid or liquid carrier.

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